GALGOTIAS UNIVERSITY

ADMISSION NUMBER

School of Computing Science and Engineering

Master of Computer Applications
Semester End Examination - Jun 2024

Duration : 180 Minutes
Max Marks : 100

Sem II - E1PY206T - Data Communication and Networking

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Discuss the use of Multicast addressing with proper example	K1(2)
2)	Explain the importance of error detection in data communication. Define common types of errors that can occur during data transmission and elaborate on how techniques such as parity checks and checksums are used for error detection.	K2(4)
3)	Explain the role of IP addressing in the Internet Protocol. How does IP addressing support the routing of data packets across networks? Provide examples to illustrate your points.	K2(6)
4)	Provide a comprehensive overview of Pulse Code Modulation (PCM) in digital communication. Discuss the fundamental principles of PCM, including sampling, quantization, and encoding.	K3(9)
5)	Explore the role and applications of infrared communication in unguided transmission media. Define infrared communication and discuss its characteristics, including limitations and advantages.	K3(9)
6)	Examine the characteristics and applications of radio waves in wireless communication. Discuss the frequency ranges used for wireless communication and the factors influencing signal propagation. Illustrate with examples how radio waves are employed in different wireless technologies, such as Wi-Fi, Bluetooth, and cellular networks.	K5(10)
7)	Examine advanced techniques in IPv4 addressing, including Variable Length Subnet Masking (VLSM) and Classless Inter-Domain Routing (CIDR).	K4(12)
8)	Explain the fundamentals of the Hypertext Transfer Protocol (HTTP) in the context of the World Wide Web. Discuss how HTTP enables the communication between web clients and servers. Explore the request-response model of HTTP, the structure of URLs, and the significance of status codes in web communication.	K5(15)

9)	Explain the structure of an IPv4 address and the principles behind subnetting. Discuss the significance of subnetting in optimizing IP address allocation and improving network efficiency.	K5(15)
10)	Imagine you are a network consultant tasked with advising a small business on implementing a computer network. Discuss, in detail, the definition and fundamental components of a computer network. Provide insights into the various uses and benefits of computer networks in enhancing business operations. Consider how the chosen network design aligns with the business's goals and requirements. Evaluate the potential challenges and solutions associated with introducing and maintaining a computer network in this scenario.	K6(18)